that the properties of Claim 14 are inherently included in Claim 2. Support for the amendments to the claims can be found throughout the Specification as filed, including in the original claims. More particularly, further support for the amendment to Claims 5 can be found on Page 7 lines 14-16. Claims 1-10, 12, 13, and 15-23 remain pending and are presented for reconsideration. No new matter has been entered.

Rejections under 35 U.S.C.§ 112, first and second paragraph:

The Examiner has rejected Claims 2-21 and 23 asserting that the Specification does not enable any person skilled in the art to use the invention. The Examiner asserts that the experimental observations disclosed in the Specification do not accurately reflect the efficacy of CD40 ligands and anti-CD40 antibodies for the breadth of vaccines encompassed by the claims. The Examiner has also rejected Claims 1-23 as not describing the invention in such full and exact terms as to enable any person skilled in the art to make and use the invention. The Examiner asserts that the defining structural features of the adjuvants are either not known or ill defined. The Examiner further asserts that there is insufficient guidance in regard to the meaning or the limits of such terms as "adjuvants", and "parts thereof".

The Examiner further objects to the use of the term "CD40 receptor". In a related objection the Examiner states that Claim 5 is ambiguous because its not clear to the Examiner whether the "part thereof" refers to the antibody or to the CD40 receptor. The Examiner has also asserted that it would be expected that "a part of" a CD40L or targeting only "parts of" CD40 would not result in sufficient signaling required for the claimed adjuvants.

The Applicant respectfully traverses the Examiner's rejections. The Applicant has amended the claims to more particularly point out and distinctly claim the subject matter of the invention. Any person having skill in the relevant art and armed with the instant Disclosure can readily practice the invention as claimed. The present invention is based, in part, on the realization that immune responses, whether to a T-cell independent or a T-cell dependent antigen,

can be enhanced by stimulating the B-cell CD40 receptor using any suitable means. The Specification as originally filed provides ample methods for stimulating the B-cell CD40 receptor. Moreover, the Specification as originally filed amply exemplifies the invention as claimed, *see e.g.*, Figure 4B the protection demonstrated in a relevant animal model. Furthermore, the Specification as originally filed provides sufficient guidance to the skilled artisan to allow him to practice the invention as claimed without undue experimentation by providing the skilled artisan with both the facile tests for determining which antigens, adjuvants, and fragments thereof will be effective, and by directing him to the requisite antigens (and fragments thereof) and adjuvants.

In view of the above and foregoing, reconsideration and withdrawal of the objections and rejections under 35 U.S.C. § 112, first paragraph and second paragraph are respectfully solicited.

Rejection under 35 U.S.C. § 102 (a), (b), and (e):

The Examiner has also rejected Claims 1-3, 5-6, 8, 10, 11 and 12 as being anticipated by Dullforce *et al.* The Examiner asserts that Dullforce *et al.* teach vaccinating with CD40 specific antibodies and polysaccharides. The Examiner has also rejected Claims 1 and 22 as being anticipated by Aruffo *et al.* The Examiner asserts that Aruffo *et al.* teach the use of mouse and human GP39 (which the Examiner asserts is a CD40 ligand) as an adjuvant to increase immune response to a vaccine. The Examiner has also rejected Claims 1 and 22 as being anticipated by Armitage *et al.* The Examiner asserts that Armitage *et al.* teach the recombinant expression of CD40L polypeptides as vaccine adjuvants in various expression systems. The Examiner has further rejected Claim 1 as being anticipated by Ledbetter *et al.* The Examiner asserts that Ledbetter *et al.* teaches the use of Bp50-specific antibodies as adjuvants. The Examiner asserts that it was known at the time of the invention that the Bp50-specific antibodies taught by Ledbetter *et al.* were specific for CD40 and therefore, according to the Examiner, Bp50 and CD40 have the same antigen specificity.

The Applicant respectfully traverses the Examiner's rejections under §102. As defined by the Federal Circuit, "[t]o anticipate a claim, a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject-matter." *PPG Industries, Inc. v. Guardian Industries Corp.*, 37 USPQ2d 1618 (Fed. Cir. 1996). "Anticipation requires identity of the claimed process and a process of the prior art; the claimed process, including each step thereof, must have been described or embodied, either expressly or inherently, in a single reference." *Glaverbel Société Anonyme v. Northlake Marketing & Supply Inc.*, 33 USPQ2d 1496,1498 (1995). The present invention as claimed teaches an immunogenic composition (that can be used as a vaccine) which contains a particular genus of adjuvants that are joined together with antigens, and methods of making and using the same. Neither Aruffo *et al., nor* Armitage *et al.,* nor Ledbetter *et al.* teach every element of the invention as claimed. Indeed, the Examiner has admitted that these articles do not disclose combining an adjuvant with an antigen of interest (*see* the present Office Action on Page 8). Therefore, neither Aruffo *et al., nor* Armitage *et al.,* nor Ledbetter *et al.* anticipate the invention as claimed.

Furthermore, Dullforce *et al.* (*i.e.*, Dullforce, Sutton and Heath) is the Applicant's own publication, describing the work from the Applicant's laboratory, and is therefore not proper art cited under §102(a). Thus, Dullforce *et al.* do not anticipate the invention as claimed. The Applicant notes that the Examiner correctly did not cite Dullforce *et al.* under §102(b) since the filing date of the instant Application is within one year of the publication date of Dullforce *et al.*

In view of the above and foregoing, reconsideration and withdrawal of the rejections under 35 U.S.C. § 102 (a), (b), and (e) are respectfully solicited.

Rejection under 35 U.S.C. § 103:

The Examiner has rejected Claims 1-23 as being obvious over Aruffo *et al.* and/or Armitage *et al.* and/or Ledbetter *et al.* and/or Dullforce *et al.* and additionally in view of Noelle,

Mond *et al.*, Scott *et al.*, and Marburg *et al.* The Examiner asserts that the teachings of Aruffo *et al.* and/or Armitage *et al.*, and/or Ledbetter *et al.*, and/or Dullforce *et al.* teach the recombinant expression including the production of soluble forms of CD40L. The Examiner does admit that these teachings differ from the instant claims by not disclosing all of the methods and formulations of making the vaccines comprising an adjuvant, nor do they disclose the combination of an adjuvant with an antigen of interest. The Examiner further asserts that Noelle *et al.* teach the importance of CD40 and the CD40 ligand in host defense. The Examiner also asserts that Mond *et al.* teach methods of making, and the use of, dual carrier immunogenic constructs as vaccines to both T dependent and T independent antigens. The Examiner further asserts that Scott *et al.* teach methods of making, and the use of, cytokines and vaccine formulations to a variety of antigens, including combining antigen or recombinantly expressing antigen in the formulations. The Examiner asserts that it would have been obvious to apply adjuvants comprising CD40 ligand or CD40-specific antibodies in a variety of known vaccine formulations to a variety of T dependent and T independent antigens. The Examiner finally asserts that a skilled artisan would have been motivated to select the CD40L or CD40-specific antibodies to make and use vaccine formulations to stimulate immune responses to a variety of antigens.

The Applicant respectfully traverses the Examiner's rejections. As discussed above Dullforce *et al.* is not prior art to the present invention. Furthermore, neither Aruffo *et al., nor* Armitage *et al.,* nor Ledbetter *et al.* teach the invention as claimed. Therefore, the Examiner must cure the deficiencies of Aruffo *et al.,* Armitage *et al.,* and Ledbetter *et al.* with a further teaching. In an attempt to provide such a teaching, the Examiner cites Noelle, Mond *et al.*, Scott *et al.*, and Marburg *et al.*

However, neither Noelle, nor Mond *et al.*, nor Scott *et al.*, and nor Marburg *et al.* can cure the deficiencies. Noelle, as the Examiner admits, only suggest a role for CD40 ligand and its receptor in host defense. Mond *et al.* disclose a dual carrier immunogenic construct having at

least one primary carrier that comprises a large molecular weight molecule of greater than a 70 kilodalton molecular weight. Scott *et al.* simply disclose the use of IL-12 as an adjuvant. Marburg *et al.* disclose a particular immunocarrier linked to pure capsular polysaccharide from *Steptococcus* to prevent pneumonia. Therefore, neither Noelle, nor Mond *et al.*, nor Scott *et al.*, and nor Marburg *et al.* lead one of ordinary skill in the art to the present invention.

The Applicant respectfully points out that *prima facie* obviousness must satisfy a crucial requirement stated in 2143.01 of the MPEP on Page 2100-112 column 1:

> FACT THAT REFERENCES CAN BE COMBINED OR MODIFIED IS NOT SUFFICIENT TO ESTABLISH *PRIMA FACIE* OBVIOUSNESS

In the present case, the motivation for making the instant invention can only be derived from the Applicant's own disclosure; not from the art cited by the Examiner. Therefore the present invention is neither taught nor made obvious by Aruffo *et al.*, Armitage *et al.*, Ledbetter *et al.*, or Dullforce *et al.*, alone or in combination, or in further combination with Noelle, Mond *et al.*, Scott *et al.*, and/or Marburg *et al.*

In view of the above and foregoing, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103 are respectfully solicited.

In view of the foregoing amendments and remarks, reconsideration and early allowance of Claims 1-10, 12, 13, and 15-23 are respectfully requested. No additional fees are believed to be necessitated by the foregoing amendments. However, should this be erroneous, authorization is hereby given to charge Deposit Account No. 11-1153 for any underpayment, or credit any overages. Should the Examiner feel that a telephone conference would facilitate resolution of any of the above issues, he is invited to telephone the undersigned attorney.

In view of the above and foregoing, reconsideration and withdrawal of the outstanding grounds of rejection and early allowance of the claims as amended is believed to be in order and are respectfully solicited.

Respectfully submitted,

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